

# Umetco Minerals Corporation



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MAR 5 1987

Mr. P. K. Willmott  
Umetco Minerals Corporation  
Section P2615  
30 Old Ridgebury Road  
Danbury, CT 06817

Subject: Summary Report of the Withdrawal of Umetco from Niagara Falls

Dear Paul:

The accompanying report summarizes the activities that were associated with the closing of the Technology Department and the sale of the Niagara Plant to Stratcor. With the exception of getting together with Jack Frost to familiarize him with where and how the pertinent information is filed and perhaps one more day on surplus equipment I consider I have done all the damage I can. To say the least, it has been an interesting, if sometimes frustrating several months. However I am satisfied that Union Carbide obligations have been successfully accomplished.

If I can be of any help in the future please don't hesitate to call on me.

Let's hope we can get together on a social basis one of these days.

Sincerely,

D. J. Hansen

/mau  
Attachment

cc: Messrs:  
✓ J. F. Frost  
T. J. Kagetsu

UCCNHT0000094



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## 1.0 INTRODUCTION

The Technology Department of Umetco Minerals Corporation was disbanded on March 31, 1985. Many items associated with the closing extended well beyond that date. These included transfer and sale of equipment, disposal of chemicals, termination of radioactive material licenses, reorganizing files, and withdrawal from the Elkem premises.

When Union Carbide subsequently sold the Niagara Plant to Strategic Minerals Corporation an Environmental Agreement was signed on May 13, 1986 in which liabilities were defined and certain reclamation, restoration, and disposal obligations were innumarated.

This report briefly summarizes the work completed in both of these areas. Details are contained in separate files which are presently located in Niagara Falls.

## 2.0 ENVIRONMENTAL ISSUES (NIAGARA FALLS)

Article 3 "Other Environmental Matters" - sections (a) through (l) of the Environmental Agreement (Niagara Falls) between Union Carbide and Strategic Minerals Corporation lists the obligations of Umetco to U. S. Vanadium.

One of these, (Item j), concerns vanadium slags and remelts and is the responsibility of U. S. Vanadium. Item k, dealing with the underground storage tanks is ongoing. U. S. Vanadium has signed letters acknowledging that 7 of the 10 remaining items were completed to their satisfaction. I have been assured that sign-off on another two, Item (a) PCB Transformers and Item (e) Asbestos in Freight Elevator will take place soon. The last one, Item (b) Halide Scrubber will be signed off after the stack discharge permit has been obtained.

More specific information on each of the items follows.

### 2.1 PCB Transformers and Capacitors

Eight transformers and in excess of 100 capacitors that contained PCB's were disposed of in May 1986 under the direction of U. S. Vanadium personnel. At that time, six transformers belonging to U. S. Vanadium and three belonging to Linde Division were retrofilled by UNISON. One of the transformers of U. S. Vanadium is a spare and could not be placed in service for the 90-days required prior to analysis and reclassification. Another failed to come to the required 50°C temperature. Mr. Gary R. Pilcher, Regional Service Manager of UNISON, has written to C. T. Wentzel agreeing to assume responsibility for reclassification at no cost to U. S. Vanadium or Umetco. A letter requesting sign-off was sent to C. T. Wentzel on January 19, 1987. I spoke with him by phone on February 17 at which time he assured me that he saw no problem.

### 2.2 Halide Scrubber

Prior to the sale, returned vanadium halide cylinders were cleaned in the yard and discharged to a sewer. In October 1985 a scheme was proposed to discharge the cylinders to a trough containing water jets that would direct the fumes to an improved scrubber. The cost was estimated to be \$70,000. In October 1986, the completed system in which costs had escalated to \$95,000



was found inadequate. It was necessary to extend a shed so that tanks could be discharged out of the wind. Additional capital was authorized by Mr. F. V. McMillen on October 10, 1986 with a stipulation that Umetco would not pay more than \$118,500. Modifications were completed and the system operated successfully on January 7, 1987.

A letter requesting "sign-off" was written to C. T. Wentzel on January 14. He sent a letter to Messrs. DeAtley and Miller on February 13 informing them that applications for air permits had been mailed to New York State D.E.C. It is my understanding they will sign-off when the permits are obtained.

### 2.3 Chrome Oxide

Fifty-one drums containing approximately 11 tons of vanadium bearing slag that had been contaminated with chrome oxide was disposed of by Chemical Waste Management (SCA Chemical Services) on April 10 and 11, 1986. A copy of the letter acknowledging that U. S. Vanadium was satisfied was mailed to F. V. McMillen on October 27, 1986.

### 2.4 High Antimony Tungsten

On April 2, 1986, approximately 50 tons of tungsten molybdenum oxide contaminated with antimony was disposed of by Chemical Waste Management (SCA Chemical Services). A copy of the letter acknowledging U. S. Vanadium "sign-off" was mailed to F. V. McMillen on October 27, 1986.

### 2.5 Asbestos in Freight Elevator

By the terms of the Environmental Agreement, UCC has "no indemnification obligation to Buyer with respect to --- (iii) any asbestos in the Niagara Falls Facility except as specifically enumerated in paragraph (e) of Article 3--". Paragraph (e) refers only to the removal of the asbestos lining in the Globar elevator. The Union Carbide Corporate Audit Team agreed that asbestos should also be removed from the Old Boiler House, pipelines outside the Old Boiler House, and Building 111 which were not part of the sale to Stratcor. This was an insurance against potential future liability.

The successful bidder was Niagara Insulations, Inc. at \$61,800.

Removal of asbestos from the elevator turned out to be much more complex than anticipated. Niagara Insulations elected to use a high pressure water jet. Unfortunately it was only partially effective and also caused asbestos to be forced through the joints in the corrugated steel walls resulting in contamination outside the elevator. Not only did the job take longer than expected but Niagara Insulations personnel had to be brought back on three occasions because the job was not completed to our satisfaction. The water treatment also removed lubrication from the elevator cable and pulleys and it was necessary to bring in Otis Elevator Company to correct this. However, on the plus side lubricating the cables also served to immobilize any fibers that may have been worked into the cable strands.

The atmosphere within the elevator was sampled by Asteco, Inc. on October 7, 1986 and again on December 11, 1986 to determine the extent of



airborn fibers. On both dates the readings were below the .01 fibers per cubic ft. recommended as satisfactory after cleanup by EPA.<sup>(1)</sup>

A letter was sent to C. T. Wentzel December 16 requesting sign-off. However U. S. Vanadium was not satisfied and resampled on February 11, 1987. This time no fibers were found in the sample. C. T. Wentzel told me by phone on February 17 that U. S. Vanadium will sign-off when he receives the written report from Asteco Inc.

## 2.6 "Super Sucker" Dust

"Super Sucker" dust is the material collected by a commercial vacuum cleaner from the rafters at various locations within the Niagara Plant. The contents of the machines are discharged randomly in the yard east of No. 5 Furnace Room. Various piles of this material were sampled by George Parker of U. S. Vanadium and analyzed by Ecology and Environment Inc. in May 1986 for leachable toxic substances. None were found which technically let us off the hook. However, it was decided to remove these materials to a sanitary land fill to avoid any questions in the future. Modern Disposal Services took care of this on August 11, 1986. U. S. Vanadium's letter of acceptance was mailed to F. V. McMillen on October 27, 1986.

## 2.7 Sample Cans

Over the years samples of raw materials, slags and ferroalloys were collected, placed in one quart tins and stored in a caged area in Building 25. Disposal of these presented a problem since the contents had to be identified and then classified as toxic or non-toxic. In addition, numerous samples, notably those from pyrocholors and uranium ores were radioactive. The disposal was begun under the direction of George Parker of U. S. Vanadium and a shipment of non-hazardous material was removed by BFI Waste System in 1985. We assumed responsibility for the remaining 1200 samples in July 1986. There were classified as radioactive, non-hazardous, or toxic and were handled accordingly. The radioactive material was included in a shipment to Barnwell, South Carolina, September 19, 1986. The balance of the samples, after classification, were emptied into 50 gallon drums. The non-toxics were removed by BFI Waste Systems on October 10, 1986, the toxic material by SCA Chemical Services on November 24, 1986. The storage area was thoroughly cleaned and monitored to be assured no radioactive material remained. A letter of acceptance by U. S. Vanadium was mailed to P. K. Willmott on January 14, 1987.

## 2.8 Yard Area - Ores and Slags

A radiation survey and surface sampling were completed in the yard area east and north of the Niagara Plant. The purpose was to determine if hazardous waste was present in this area, in which case Umetco would assume the cost of reclamation, or if not, the surveys could serve as a benchmark for deciding reclamation costs at the termination of U. S. Vanadium operations at Niagara Falls.

(1) The Department of Labor (OSHA) as of June 20, 1986 will allow 0.2 fibers per cc but requires medical surveillance at 0.1 fibers per cc. The regulation for permissible airborne fibers in the workplace are an order of magnitude higher than that suggested by EPA after cleanup.



Gamma radiation was measured at waist level and at surface contact on a grid laid out on 50-ft. centers. With the exception of one slag pile that was subsequently removed, no anomalies were observed. The survey was completed May 5 and 6, 1986 and reported to F. V. McMillen on May 15.

The surface sampling was completed on April 30, 1986. The area east and north of the Niagara Plant was surveyed and divided into eight parcels of approximately one acre each. Five samples from surface to six inches deep were taken and blended to form a composite sample for each one acre parcel. The samples were submitted to Advanced Environmental Systems Inc. for analyses of PCB's, EP Toxicity Metals and the 13 Priority Pollutant Metals. All samples were well below permissible levels for PCB's and EP Toxicity. Of the Priority Pollutants, chromium, nickel, zinc, and copper were detected. These have no significance unless the soil is to be removed.

U. S. Vanadium signed off on this item in October 1986.

## 2.9 Plant Buildings

A gamma radiation survey completed in February 1986 uncovered three areas within the plant that had radiation significantly above background. These were an area immediately adjacent to No. 30 Furnace in Building 29, a pit in Building 24 (VA1), and a slag pile east of Building 29. This discovery caused some concern because we had been actively trying to terminate our radioactive material licenses for over a year. Mr. R. Kelly of the State of New York - Department of Labor, was informed and later met with Bob Beverly and me to decide on the proper course of action.

We discovered that New York State is more lenient than NRC on defining allowable concentrations of natural occurring radioactivity (500  $\mu\text{g/g}$  of combined U + Th and radiation less than 250  $\mu\text{R}$  at surface). The contaminated millenite in the pit in Building 24 and the slag in the yard area contained less than this limit. However, Dr. F. J. Bradley, Principle Radiophysicist of the New York Department of Labor suggested it would be wise to remove the material to a waste site to avoid riders on the lease of the property.

Subsequently, nineteen 55-gallon drums of radioactive soil and slag from No. 30 Furnace were shipped to Barnwell Waste Management Facility, SC by Chem Nuclear Systems on September 19, 1986. The 125 drums of low level radioactive millenite from Building 24 and the 75 tons of low level radioactive slag were disposed of by Chemical Waste Management (SCA) on June 18, 19 and 20. The areas adjacent to No. 30 Furnace and the pit in Building 24 were backfilled with crushed stone by Dube Construction Company.

U. S. Vanadium signed the letter of acknowledgement in October 1986.

## 2.10 Drain and Level Lake

A low area east of the Niagara Plant on the property line between L-Tec and U. S. Vanadium collected rain water and discharge from L-Tec forming a sizeable artificial pond sometimes referred to as "Lake Linde". After consultation between personnel from Linde, L-Tec, and Umetco it was decided to take remedial action. The north end of the pond was drained by L-Tec in April 1986.



The final draining and grading was completed by Dube Construction on August 22, 1986. Several truckloads of clay from Elkem property was used as fill. This material had been used as a temporary cap over an area that had been excavated to remove radioactive soil. Samples of the clay were obtained by Advanced Environmental Systems and analyzed for leachable EP Toxicity Metals. The samples were then forwarded to the Linde Division R&D Analytical Services for radio-assays. There were no leachable toxic metals and the radioactivity was barely above background.

Polaroid snapshots of the graded area were submitted as part of the record.

U. S. Vanadium signed off on this item in October 1986.

### 3.0 CLOSING OF THE TECHNOLOGY DEPARTMENT

#### 3.1 Transfer and Sale of Equipment and Furniture

When the disbanding of the Technology Department was announced all the laboratory equipment at Niagara Falls (and Grand Junction) became surplus. The equipment lists that had been prepared for the "Tiger" project were circulated to the Niagara, Hot Springs and Bishop Plants. Equipment was shipped on request on a "first come - first served" basis. The Hot Springs Plant was the most aggressive receiving about 90% of the Grand Junction analytical laboratory equipment plus two large shipments from Niagara Falls.

The balance of the sale was placed in the hands of Investment Recovery. Their first order of priority was to offer surplus equipment to other divisions of Union Carbide. Roy Sommers visited the Technology facility and prepared a booklet listing those items he thought would move quickly. Closing Date for request was set as October 15, 1985.

The response within the Corporation was good. Eighteen locations made requests and equipment with an initial value of \$139,852 was transferred.

Elkem Metals was given first choice when sales were opened up outside the Corporation. They purchased considerable equipment to which was assigned an \$11,190 price tag.

The choice office furniture, i.e. that constructed of wood, both from R&D and Engineering went to the Linde Divisions located next door.

Most of the equipment and furniture remaining was moved to the vacant "Old Works Lab", (Building 111) prior to the termination of our lease with Elkem December 31, 1985. Some of the heavier pieces were stored in garages near the Engineering Building. Furniture and partitions from Engineering (Building 149) were also stored in Building 11 when that facility was turned over to Linde Division.

Investment Recovery invited several used equipment dealers to bid on what was left. Representatives from two firms, BoChem and J. Little Mercer sent representatives to view the equipment. BoChem submitted a bid of \$1750 which was turned down.



On February of 1986 an inventory of what was available, including the contents of the more than 241 cartons used in moving, was compiled and sent to Investment Recovery. They sent the list out again inviting bids for a "as is, where is" package. Polyscience, Inc. made an offer of \$6800 which was accepted on May 19, 1986 by Investment Recovery. This offer was subsequently withdrawn.

J. Little Mercer Company made a revised bid of \$10,000 in June 1986 but when they found out that Polyscience had dropped out of the bidding they withdrew their offer.

We then began to sell small orders of equipment to small local firms and some furniture to individuals. There were approximately 21 transactions with total sales amounting to \$7,410.

The contents of the garage were sold for scrap in February 1987 because U. S. Vanadium wanted use of the area. Ownership of Building 111 remains with Union Carbide; Linde Gas Products will act as caretaker. To the best of my knowledge Investment Recovery will leave the equipment in Building 111 until it becomes necessary to dispose of it all.

### 3.2 Vacating Elkem Buildings

Building 169 housed the Carvan Shaft Furnace, the Rotolouvre Dryer (Asbestos Plant), the Pilot Heap Leach, as well as some small scale laboratory equipment. When the decision was made to retain the shaft furnace, Jack Zasler was hired as a consultant to supervise its dismantling and transfer to the Niagara Plant. The Asbestos Pilot Plant was dismantled and components sold or scrapped. Scrufari Construction Company performed the work under Jack's supervision. Asteco Inc. was retained to obtain air samples to assure that asbestos fibers was not rendered airborne during the disassembly. Building 169 was thoroughly cleaned to the satisfaction of Elkem personnel before vacating. The dismantling costs were estimated to be \$15,000 plus \$12,000 for Investment Recovery's role.

The equipment and furniture in Buildings 166 and 94 were moved to Building 111 in November and December of 1985 by Kuhns Moving and Storage Company. The total moving cost was about \$16,000.

### 3.3 Disposal of Chemicals

It was customary for each laboratory within the Niagara Falls complex to have a stock of chemicals. To simplify disposal, the chemicals in each of the labs were collected in two central locations - one for inorganics and one for organics. They were then grouped according to element or compound and a comprehensive listing was prepared. There were in excess of 2500 items. A copy of the list was sent out to the Umetco Plants and to Elkem to see if they had use for any of these chemicals. Elkem, the only respondent, took about 100 items.

SCA Chemicals, with whom Union Carbide had a national contract, handled the packaging and disposal of the balance. Tracking down the composition of the numerous organic chemicals used in mineral dressing proved quite challenging. The disposal costs were approximately \$15,000; probably a bargain considering the time SCA personnel had to spend on this job.



In April of 1986 additional mineral dressing chemicals that were stored in Building 99 and had been overlooked were disposed of at an additional cost of \$3,700.

### 3.4 Termination of Radioactive Material Licenses

The Niagara Complex had acquired three radioactive material licenses. License No. 955-0139 for a radioactive source for a density gauge and No. 950-0139 to allow processing of columbium ores were assigned to the plant. License No. 210-0090, assigned to Technology, was for several radioactive sources.

#### 3.4.1 License No. 955-0139

This license was for one (1) 150 mCi Cs 137 source used in an Ohmart density gauge to measure the specific gravity of calcium hydroxide sludge in a pipe. It was granted in February 1965; it was amended 10 times, the most recent being October 1981. The source was sent back to the manufacturer by George Parker in August 1985. License termination was granted on September 4, 1986.

#### 3.4.2 License No. 950-0139

The original license was issued to Olefins and Metals Division of UCC in January 1965. The license superseded U. S. Atomic Energy Commission License No. SUB-469 which was terminated when jurisdiction passed from federal to state control. It was issued to cover the processing of ores and the storage of slags containing thorium and uranium used or generated in the production of ferrocolumbium.

Production of ferrocolumbium was discontinued about 1972, a letter requesting termination of the license was written to New York State by Mr. D. Brosnahan on March 11, 1982. However an earlier survey by DOE/MED indicated areas of above background radiation on Metals Division property behind Building 166. A subsequent survey by R. Kelly of New York State Department of Labor in April 1982 showed four areas to be out of compliance. The contaminated soil was removed over a period of two years. Samples taken on March 20, 1986 were found to be free of contamination and termination of the license was granted on August 15, 1986.

#### 3.4.3 License No. 210-0090

This license was issued to the Technology Department of Union Carbide Metals Company on November 28, 1962. It superseded AEC License No. 31-1069-2. At that time it covered four radioactive elements for use in radiochemical tracer studies. We have ten amendments on file, the last one dated May 11, 1982 which added a new Cobalt 57 Sealed Source.

A request was made to terminate this license on February 7, 1986. At that time the following sealed sources were included in the license: 2 Cesium 137, 1 (ea.) Cd 109, Fe 55, Co 57, and Pu 238. In addition, at that time, the Lab had on hand an unknown radium source, an alphasource, about 3-1/2 pounds of thorium chemicals, four fused thorium oxide



crucibles, and an Alnor dewpointer. A table, which was included in the request for termination, indicating the details of disposal is reproduced below. The license was terminated on August 15, 1986.

#### DISPOSAL OF RADIOACTIVE MATERIALS

<u>Radioactive Source</u>	<u>Disposal</u>	<u>Broker or Manufacturer</u>	<u>Packaged By</u>	<u>Carrier</u>	<u>Date</u>
(2) CS 137	Nuclear Res Warrington, PA	Accuray (Manufacturer)	C Kolodjeski (Accuray)	Smith Transfer	10/17/85
Alnor Dewpointer	Alnor Inst.Co. Skokie, IL (Manufacturer)		A Gonas (Umetco)	U P.S.	12/6/85
Cd 109 Co 57 Fe 55 Pu 238	Amersham (Manufacturer)		F Susterick (Amersham)	Federal Express	12/10/85
Thorium Oxide(1/2#) Nitrate(2#) Chloride(1#) (4) Thorium Crucibles - 3-1/2" x 1-3/4" Alphatron Gauge Radium Source	US Ecology Richland, WA	Chem Nuclear (Broker)	J Bender (Chem Nuclear)	Consolidated Freightways	12/31/85

#### 3.5 Technology Files

At the time of the sale of the ferroalloy related business to Elkem in 1981 the Technology Files were split along product lines. The Metals Division continued to use the same file room and shared the part time services of Mrs. Florence Englander, an experienced file clerk. Unfortunately the files were not complete - primarily because incoming correspondence, reports, etc., were in most cases not forwarded for filing. Most of this information was buried in individual's personal files. Again, unfortunately, these were never sorted when personnel were retired, transferred or terminated.

The Technology Files, both from Niagara Falls and Grand Junction, together with numerous personal files that remained were physically transferred to the Niagara Plant prior to December 31, 1985. Over the next several months these were culled, sorted, and indexed. The uranium files (19 boxes) were shipped to Grand Junction on August 14, 1986.

The remaining files on vanadium, tungsten, and numerous other topics were sorted and turned over to U.S. Vanadium in October 1986. Copies of the Technology Files Index together with a letter listing the contents of the other files was mailed to appropriate Umetco personnel on October 30, 1986.



The patent files, including the dockets dealing with uranium are located in the same room.

### 3.6 Decontamination and Restoration of Elkem Site

Personnel from ORNL and DOE surveyed the Technology Site in August of 1976 because this property had housed uranium metal production in 1942. Above background beta-gamma readings were found behind Building 166. Subsequent aerial radiological surveys in 1978 and 1979 showed no anomalies on the Union Carbide site. In September 1980, ORNL personnel conducted a follow-up radiological survey and found relatively high concentrations of the gamma-emitting radionuclides of the thorium 232 and uranium 238 decay chains in the surface soil around Building 166 and 163. It was concluded, based on U-238 and Ra-226 ratios, that the contamination was from thorium bearing ores and not uranium metal. It was recommended a more comprehensive survey be completed.

A preliminary radiation survey was conducted by Dave Brosnahan in October 1981 which showed high concentrations along the railroad tracks behind Building 166.

On December 7, 1981, UCC was cited for being in violation of the New York Radioactive Materials License 950-0139. Concentrations of source material exceeded limits specified for uncontrolled areas.

A comprehensive radiation survey was then undertaken by Lee Evans and Dave Brosnahan and a Design Memo "Radiological Survey, Cleanup Options and Cost Estimates" was released by Lee Evans on July 13, 1983. The decision was made to proceed with the most expensive option (\$335M) which involved removal of soil and shipping it to a repository.

Excavation began in the summer of 1984 and shipments to both Uravan, Colorado for processing and Barnwell, South Carolina for burial continued until the end of the year.

The excavated area was backfilled with clay. [Elkem Metals objected to this step, complaining that the compacted clay would not yield a surface that would be satisfactory for storage or vehicle traffic.]

Analysis of samples, taken before excavation in July 1984, after excavation, and after backfilling in October 1984, at surface and depths of six and twelve inches, were forwarded to New York State in July 1985. The delay in analytical results was caused in part by the closing of the Grand Junction Analytical Lab. Later, samples had to be resubmitted when Alpha Nuclear in Dallas analyzed the incorrect thorium isotope.

Mr. Kelly, Department of Labor, obtained samples to verify cleanup on March 20, 1986. Notification that the license was terminated was received on August 15, 1986.

Dube Construction Company was awarded a contract (\$18,500) to restore the Elkem property. This consisted of excavating about one foot of the clay cap and backfilling with crushed stone.



Mr. Richard Crago, Site Manager of Elkem Metals, signed a letter on September 9, 1986 acknowledging that the restoration and delicensing was completed to their satisfaction. It was suggested a copy of this letter be placed in the Tiger Project Files. Polaroid snapshots of the job at completion are retained in the file here at Niagara Falls.

#### 4.0 OTHER ACTIVITIES

##### 4.1 Removal of Boiler Room Stacks

Union Carbide elected to retain the old boiler room complex as insurance when Occidental Petroleum began to provide steam to the Niagara Complex. This facility was retained when surrounding buildings were sold to Niacet in 1981. The age and condition of the boilers precluded further use and the two stacks presented a safety problem. The stacks were taken down by Scrufari Construction Company July 22 through July 24, 1986 at a cost of about \$4400. This included an overrun of about \$2000, the cost of bringing in a heavier crane which was necessary when the stacks were found to be double walled and filled with insulation. The double wall caused additional problems for the scrap dealer selected for the disposal. It became too expensive for him to cut the stacks into small enough sections for him to be able to mount the pieces on his trucks. To avoid the liability of stacks lying on Niacet property, Scrufari Construction was commissioned by us to assist in the removal. This was accomplished on February 11, 1987. The cost was approximately \$1000.

##### 4.2 Asbestos Removal

The boilers and associated piping of the Old Boiler House were insulated with asbestos. The insulation on the six pipes that ran for approximately 800 feet on a pipe rack was in sad condition. In addition, asbestos insulation was found on steam lines within Building 111. The decision was made to remove this material for environmental and safety considerations. This work was included in the contract awarded to Niagara Insulation in August 1986.

#### 5.0 CONCLUSION

This report contains an overview of the tasks involved when a major facility is closed and sold. It is meant only to be a summary which could lead somebody interested in more detail to the proper files.